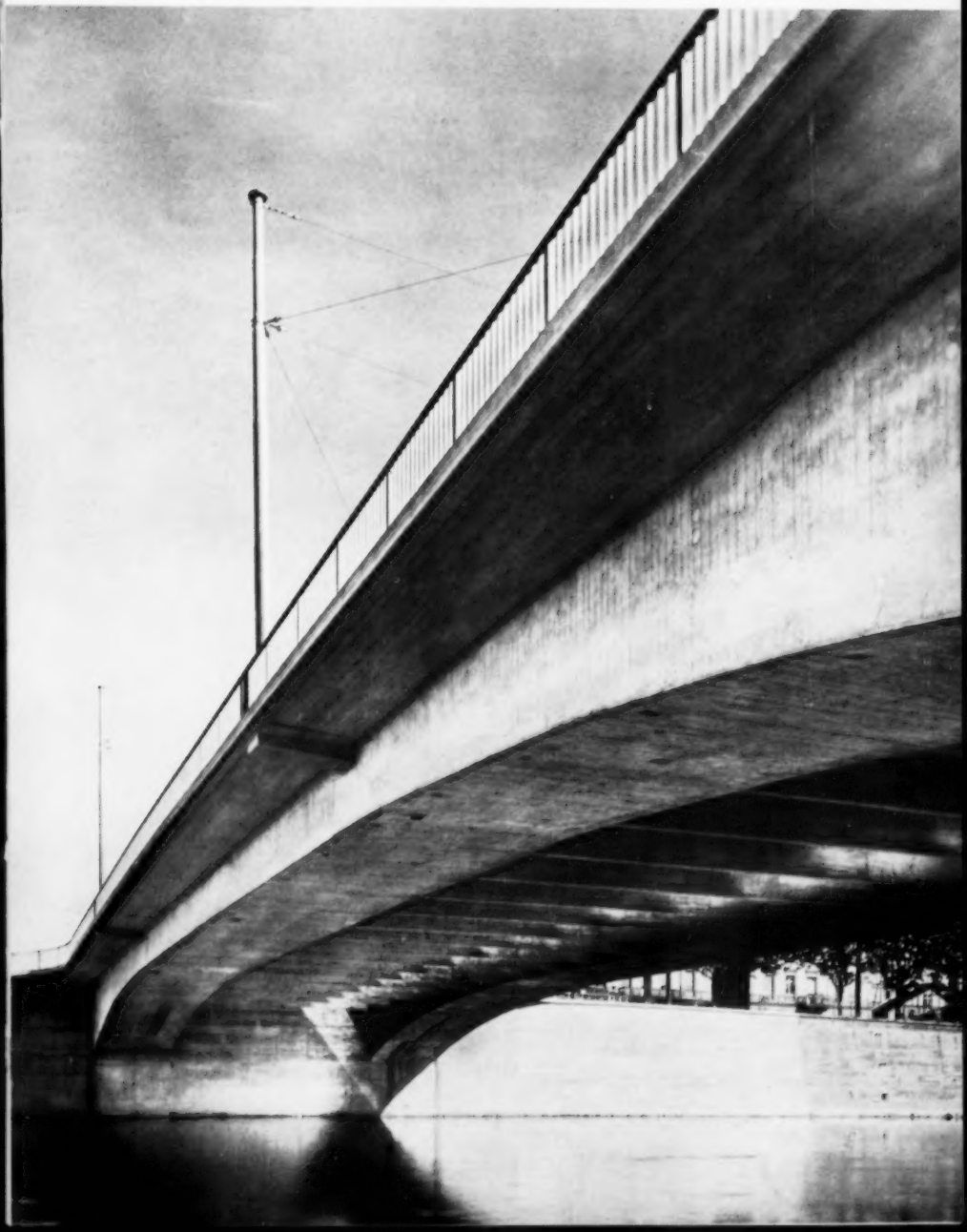
ACI News Letter

Vol. 26, No. 7 JOURNAL of the AMERICAN CONCRETE INSTITUTE March 1955



How would you repair the bridge pier shown in the photo? Scouring action had washed away foundation material, weakening the bridge and exposing the timber pad and piles to rot and decay.

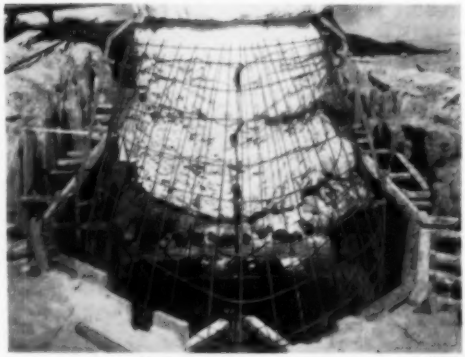
When this problem faced the Atchison, Topeka & Santa Fe Railroad some 10 years ago, they did what more and more companies are now doing—they called in Intrusion-Prepakt, Inc. Foundation stabilization with Prepakt methods and materials made the . . .

Santa Fe

BRIDGE...BETTER THAN EVER!

Intrusion-Prepakt repaired Santa Fe's Bridge 49-B near Topeka by (1) filling all voids under piers and among timbers with Intrusion Grout and (2) encasing the old foundations with Prepakt Concrete—producing new, stronger pier bases. All work was done without interrupting rail traffic.

Prepakt Concrete is made by preplacing coarse aggregate in forms, then consolidating the stone to concrete by pumping all voids completely full with Intrusion Mortar. The resulting Prepakt Concrete has an exceptionally strong bond to old concrete and extreme resistance to weathering.



Economical Prepakt techniques corrected scour damage and provided underpinnings which made this bridge stronger and more resistant to deterioration than when new. The highly impermeable Prepakt Concrete has withstood scour action and cyclic freezing and thawing, and is still in excellent condition.

If you have a concrete structure to repair or a foundation to stabilize, investigate Prepakt's many proved advantages.

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ACI

News Letter Contents

March 1955

On the Cover—A rigid-frame concrete bridge in Stuttgart, Germany. The bridge incorporates adjustable horizontal thrust to counteract poor foundation conditions. Architect—Tiedje. Engineers—Leonhardt, R. Bauer, and Deininger. Contractor—L. Bauer. *Courtesy Deutscher Beton-Verein E. V. (Wiesbaden)*

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Large Turnout for 51st Convention

The 51st Annual ACI Convention, February 21-24, drew 826 persons to the Schroeder Hotel, Milwaukee. Also a splendid turnout of 75 registrants' wives was recorded.

Large audiences responded to all activities from the full day of technical committee meetings to the final session on research. The Awards Luncheon and the banquet, on Wednesday, February 23, were also well attended. The success of the convention was attributable in large measure to the efforts of the local committee.

Newly elected officers were introduced at the annual Awards luncheon. They were: Charles S. Whitney, president; Walter H. Price, vice-president; Harry C. Delzell, Thomas B. Kennedy, Walter J. McCoy, and Douglas McHenry, directors.

Retiring Board members A. Allen Bates, J. W. Kelly, F. N. Menefee, Bailey Tremper, and Harry F. Thomson received Certificates of Appreciation.

Institute awards were also presented at the luncheon. The Henry C. Turner Medal was awarded posthumously to Roderick B. Young. The Wason Medal for "the most meritorious paper" was presented to Rudolph C. Valore, Jr.; the Wason Medal for "noteworthy research" was given to Thomas B. Kennedy and Katharine Mather. Honorary membership was bestowed on Frank H. Jackson, past president of the Institute, and Thomas E. Stanton, former ACI director.

A special feature of the luncheon was the presentation of plaques to past presidents. Of the 19 living past presidents 11 were present to receive their plaques.

The complete convention story, including a report of the proceedings of the technical sessions, will be presented in detail in the April *News Letter*.

Expanding Markets by Technological Advancement

The possibilities of creating demand through technological improvement are very great. A recent issue of *Construction Markets*, published by the Construction and Civic Development Department, Chamber of Commerce of the United States, points out some of the significant technological changes that are now apparent and the directions in which they may be pursued to advantage.

Prospect of cost reduction

There is substantial evidence that contractors and builders, in this period of mounting competitive effort, already are placing greater emphasis upon improved efficiency and cost reduction than was necessary during a period of high pressure demand. A considerable gain in the efficiency of construction operations has already been effected. It is safe to assume that this gain will broaden, because the means by which it was accomplished are constantly coming into wider use. These are: better construction machinery, a wider range of available machines, and the wider use of mechanized methods both at the site and in the pre-site preparation and assembly of materials.

Only a few years ago the most important construction tools, and in many instances the only tools used in construction, were those in the artisan's kit. This is no longer the case. Earth-moving and highway building were among the first construction processes in which power-driven machines were given wide use. Today, notes *Construction Markets*, these activities represent the most heavily capitalized elements in the construction industry, and have produced the most convincing evidence of increased efficiency. The rest of the industry is fast catching up with its heavy construction element. Power tools are now extensively employed even on small building jobs.

Cost cutting can also be accomplished by reducing the number of operations that have to be carried on in the open. Advances are being made in precasting (for concrete elements) and the pre-assembly of wall, floor, and ceiling panels. The ability to enclose a small house in a matter of hours or a large office building within a week, as recently was done in New York, can effect notable savings in construction cost and in financing cost as well, by getting the structure into productive use at an earlier date than would otherwise be possible.

Efficient organization of construction firms and their job operations is another means of effecting economy. Large heavy-construction outfits have long been a marvel of organization. More recently, great strides have been made in the organization of residential building, so that today large merchant builders are reaching a stage of efficiency comparable with manufacturing operations. A similar development has taken place in the handling and pre-assembly of building products, which results in bringing to the small builder the benefits of modern methods that otherwise would be available only to the larger operator.

Improving the product

Cost reduction alone, points out *Construction Markets*, is not likely to make a market, but combined with a better, more attractive product, the construction industry has a confident basis for expansion. Fortunately, the features that promise most for lower costs also create better products. The increased sense of responsibility that comes with greater size, greater efficiency, and larger capital investment, and the more frequent employment of architectural and engineering talent, all make for more dependable and more attractive products.

Moreover, as a result of manufacturers' research and development, builders now have at hand improved materials and equipment of all kinds. Advancement has been made in the quality and useability of all the basic materials—concrete, brick, lumber, plaster, glass. In addition, there are numerous new or more highly developed products unknown or only in an experimental stage a generation ago. All these make for the more rapid obsolescence of old buildings and broader markets for new construction and modernization.

The construction industry is becoming steadily more aware of and responsive to the appeal of style, comfort, and convenience. Modern materials and equipment, of course, make it easier to create this appeal.

A new age in design and planning is indicating revolutionary developments in the exterior design and spatial arrangements of factories, commercial buildings, and dwellings. Yet this development is plainly still at its beginning. The next few years are certain to see an acceleration in progress.

Role of associations in technological advancement

The current technological revolution is so pervasive that credit for it cannot easily be assigned. Manufacturers of building products have played a vital role. Individual builders, architects, and engineers have made important contributions. Government, through such agencies as the Forest Products Laboratory, the National Bureau of Standards, and the Housing and Home Finance Agency, has added impetus. Universities, foundations, and an army of private organizations have been at work.

Especially significant is the work done by professional societies and trade associations, emphasizes *Construction Markets*. The associations of the cement, lumber, gypsum, brick, paint, and steel industries all maintain laboratories or research centers for the improvement of products and methods of installation. The associations of the electrical and heating industries have done a great deal of developmental work.

Many organizations that do not have their own research facilities finance projects at university and private laboratories. Other organizations that do not engage directly in primary research work provide their members with information about current technological developments and aid them in putting it to practical application. [ACI is a good example of this type of organization. In addition, many of these organizations join to search for solutions to common problems, *e.g.*, the joint ACI-ASCE technical committees, ACI participation in the Highway Research Board, ASTM, and others.] All of which indicates that the construction industry is alive to both its responsibilities and opportunities and that it is capable of cooperative effort of great effectiveness.

Problems of correlation and direction

The vast scope of technological innovation in itself presents problems. The problems are those of synthesizing the work already done or under way, of recognizing imbalances, particularly between methods on the one hand and suitable materials on the other, of discovering the lags and gaps in current de-

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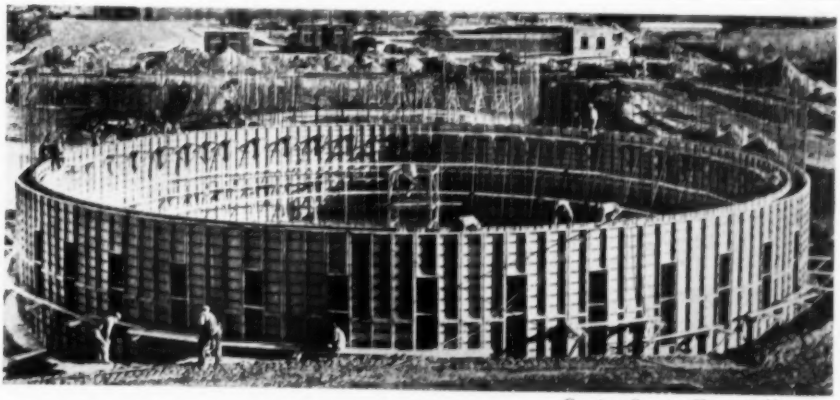

Courtesy Symons Clamp & Mfg. Co.

Construction workers on a million-dollar sewage treatment plant project at Birmingham, Ala., will welcome the sight of a corner when they finish their present job. They are building six circular digester tanks, each 100 ft in diameter, with concrete walls 29 ft high.

Openings are left at intervals in the first lift of forms, which is 16 ft high, so that the concrete drop can be kept within the prescribed limit of 4 ft. The openings are closed with 2 x 4 ft panels as the concrete is brought up.

Approximately 10,000 sq ft of forms are required to form the first lift of each tank. The remaining 13 ft of wall height is completed by a second lift.

General contractor is Sullivan, Long, and Haggerty of Birmingham, Ala.

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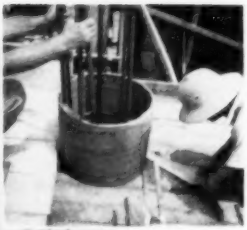

SONOTUBES are easily sawed to required length.

Dallas, Texas Parking Garage, Jacob E. Anderson, Architect, John A. Murlin, Structural Engr., James Stewart Co., Contractors.

Save time on formwork!

*. . . low cost **SONOTUBES** make it possible*

Construction time for this Dallas Parking Garage required only 27 days. And one of the major factors contributing to the savings in time and money was the use of low cost SONOTUBE Fibre Forms.

See our catalog in Sweet's

SONOTUBES were dropped over vertical and spiraled reinforcing rods to provide the formwork for the round concrete columns. Holes to receive the fibre forms were precut in the beam formwork.

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Slings for handling precast concrete building units

By JOHN C. APPLEGARTH*

Precast concrete building shapes include planks, joists, girders, I-beams, and other large structural shapes. Some of these elements are cast with hooks permanently fixed in the assembly, and this type can be easily removed from the mold with an overhead chain hook. Other types, however, are not cast with hooks in the assembly and it is necessary to lift such units by slings of one type or another.

The major problem in the selection of the type of sling to be used is the extremely abrasive condition of the castings themselves. Since many of the precast units are extremely heavy and offer a combination of both abrasive flat surfaces and sharp edges, it is necessary that the manufacturer choose a type of sling that can withstand the abrasion and weight combination as well as one that will not damage the concrete.

One manufacturer, Arnold Stone Co., Greensboro, N. C., has been using a woven wire sling constructed by weaving together sections of spiral wire loops. These are joined across the body of the sling to provide a broad, flat bearing surface for the load. Because of the spiral wire loop construction, the sling bends along its width as well as along its length. Thus it grips tightly around sharp edges but will not crush the edges or mar flat surfaces.

Arnold Stone Co. is using woven wire slings for handling such items as joists, column struts, and large lintels. When the concrete in the molds for these units has hardened, the element is shaken out of the mold. Woven wire slings are used to move the completed unit from the shake-out station to the point where the castings are filled and rubbed down. Other slings are used to move the units out of the plant to storage areas.

As shown in Fig. 1, short lengths of woven wire slings are suspended at either end of a spreader bar, which in turn is suspended from an overhead monorail hoist. The woven wire slings are used in a basket hitch, that is, with both handles on the hook, to use the maximum strength of the sling. The other method of using this type of sling is in what is called a choke hitch, that is, with the male handle passed through the female handle and attached to the lifting hook. This hitch gives the user the benefit of the maximum gripping power of the sling since in such a hitch the sling bends entirely around the circumference of the load.

Since the woven wire sling is of all-metal construction, it is not cut or otherwise damaged by the sharp edges of the concrete unit, and since the sling flexes along its length and across its width, it conforms readily to any angle or configuration of the piece being handled. The company has also found that the woven wire slings provide substantial savings in maintenance costs over an extended period, in spite of the fact that the initial cost of woven wire slings is appreciably more than the initial cost of other slings used previously.

*The Cambridge Wire Cloth Co., Cambridge, Md.

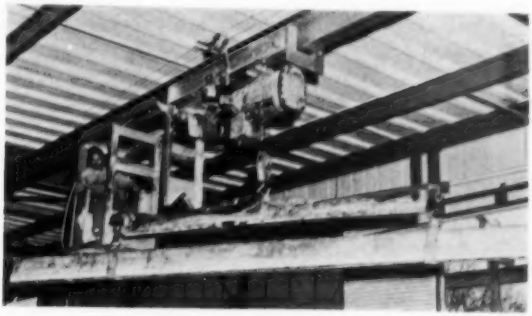


Fig. 1—Handling precast concrete building unit with woven wire slings using a basket hitch

Positions and Projects — ACI Members

Johnson wins award

Robert C. Johnson, president, Siesel Construction Co., Milwaukee, was awarded the Engineer-of-the-Year Award of the Engineering Society of Milwaukee. The award was made as part of the observance of National Engineers' Week. An active ACI member since 1925, except for a brief period in the Navy, Mr. Johnson was the first chairman of ACI Committee 604, Winter Concreting Methods, and is now a member of ACI Committee 318, Standard Building Code. He was on the Milwaukee committee for the 51st annual ACI convention and presented the paper "Concrete Facts and Fiction" to the convention. Mr. Johnson is a member of both the Wisconsin and Milwaukee building code groups.

Hyde changes positions

Sam E. Hyde, Jr., formerly service engineer, Cumberland Portland Cement Co., Chattanooga, Tenn., is now associated with Southern States Portland Cement Co., Albany, Ga., in a similar capacity.

Emerson retires

Harry B. Emerson has retired as western service manager of Lehigh Portland Cement Co., Allentown, Pa., after 29 years of service. Mr. Emerson, who participated in the formation of the service department in the east, moved to Chicago a few months after joining the company in 1925 and was placed in charge of the service department for the western division where he remained until his retirement. His main activities were in the concrete products and ready-mixed concrete industries, and he played an important part in their growth.

Turner announces appointments

George M. Reaves has been elected a vice-president of Turner Construction Co., New York. Mr. Reaves has been in charge of many important construction projects, including the New England Telephone & Telegraph building in Boston and the United States Steel-Mellon Bank building in Pittsburgh. He was project manager on the White Pine Copper Development, White Pine, Mich. Mr. Reaves was appointed general manager of Turner's Boston office in 1954. He will be in charge of the Boston office.

N. B. O'Connell was elected a director of the company. Mr. O'Connell has been with Turner since 1920 and was elected a vice-president in 1952.

Davis advanced by Atlas Cement

Appointment of Clayton L. Davis as technical service director of Universal Atlas Cement Co., New York, was announced recently. He succeeds Earl R. Bryant who died January 26.

Mr. Davis is a civil engineering graduate of the University of Michigan. Following several years of physical testing of cement for Huron Portland Cement Co. and Michigan State Highway Laboratories, he joined Universal Atlas at Chicago in 1930 as engineer in its inspection bureau. In 1937, he became assistant engineer of tests, in which capacity two years later, he moved to the company's New York headquarters. In 1943, he was appointed engineer of tests and has continued in this capacity until now.

Mr. Davis is a member of ACI and is currently serving on ACI Committee 613, Recommended Practice for Proportioning Concrete Mixes. He is also active in the American Society for Testing Materials.

Medusa Cement promotes Marshall

Robert A. Marshall has been appointed assistant vice-president and assistant general sales manager of Medusa Portland Cement Co., Cleveland. Mr. Marshall held an administrative position in the sales department of the company for the past year. He was formerly assistant vice-president in charge of branches of the National City Bank of Cleveland.

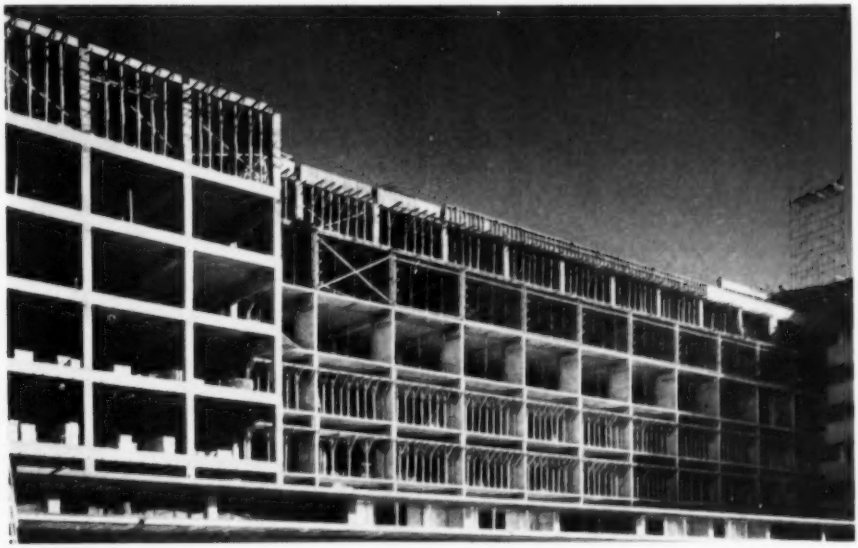
Harper and Kemp form partnership

Terrell R. Harper and Harris A. Kemp have announced the formation of a partnership for the practice of architecture. The firm, Harper & Kemp, Architects, will be located in Dallas, Texas.

For this $8,000,000 medical school and hospital, Mr. N. W. Overstreet, one of the architects, writes, "No other systems were considered, because we know that reinforced concrete is less expensive and better." Mr. H. N. Howe, the structural engineer, adds, "Numerous studies over a period of years have invariably shown that a reinforced concrete frame is more economical for fireproof buildings of light occupancy."

On this job, as on jobs over the entire country, reinforced concrete gives a better structure for less money—and materials are always readily available for quick starts. It's a flexible medium, too, inherently firesafe, and highly resistant to shock. On your next job, design for reinforced concrete.

"we know that REINFORCED CONCRETE is less expensive and better"



University Medical School and Teaching Hospital, Jackson, Mississippi
Architects: MNO Associated Architects; E. L. Malvaney, R. W. Naef, N. W. Overstreet
Structural Engineers: Gardner & Howe, Post & Witty Associated

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Versatility. Concrete made with this process can be pumped, cast in intricate forms, sawed or nailed.
Low-cost equipment.

Certain areas still open for distribution.

Conference for engineers at OSU

On May 6, 1955, the College of Engineering at Ohio State University will hold its second annual conference for engineers with practicing engineers and architects from business and industry meeting to review technical developments of the past year and looking ahead to the challenges facing engineers during the coming year.

A general session and departmental technical meeting are designed to help to bring participants up-to-date on outstanding engineering problems and developments of the day. John C. Sharp, president, Hotpoint Co., will examine critically the challenges ahead for engineers in industry. General Curtis E. LeMay, commanding general, Strategic Air Command, USAF, will present some of our nation's critical air defense problems from the engineers' point of view. These speakers are engineering alumni of OSU and will be followed on the program by college faculty and other experts who will discuss research progress in the college and demonstrate some of their projects and results. The evening will be devoted to an engineering open house which will afford conference guests and the public the opportunity of inspecting instructional as well as research facilities of the college.

McAdam appointed director of research

Francis A. McAdam has been appointed director of research and development of Huron Portland Cement Co., Detroit. A graduate of Wentworth Institute, Boston, Mr. McAdam has been director of research, Southern States Portland Cement Co., and construction products manager of Dewey and Almy Chemical Co. During World War II, he served as head of the nonmetallic section of the Building Materials Division of the War Production Board.

Equipment distributors meet

The 36th annual meeting of the Associated Equipment Distributors was held in Chicago Jan. 23-27, 1955. Program included a clinic for local association officials and advertising forums. Ray J. Finn, president of Bode-Finn Co., Cincinnati, was elected international president for 1955.

Piper, Allan, and Shiels advance at PCA

James D. Piper has been named vice-president for promotion and W. D. M. Allan vice-president and secretary of the Portland Cement Assn., Chicago.

Mr. Piper, who succeeds Mr. Allan as vice-president for promotion, has been district engineer in charge of PCA activities in Texas, with offices in Austin, since 1949. In his new position, he will supervise promotion activities of the association throughout the country, including the work of 29 district offices serving 46 states, the District of Columbia, and British Columbia.

Piper

Mr. Allan, a veteran of 36 years with PCA, has served as vice-president for promotion and secretary for the past 3 years. In his new position as vice-president, he will direct special activities of the association.

Mr. Allan joined the Portland Cement Assn.'s field staff in 1918. In 1926 he was named manager of the Cement Products Bureau, a position in which he served until 1933 when he became director of promotion. In 1947, he was elected secretary. He served as secretary and director of promotion until 1952 when he was promoted to vice-president for promotion, and secretary.

Allan

Mr. Piper joined PCA in 1937 as a structural engineer in its Oklahoma City office. He served as structural engineer in the Austin, Texas, office from 1939 to 1942, when he entered the U. S. Naval Civil Engineer Corps. He returned to PCA in 1945 as a structural field engineer with headquarters in Houston, Texas. In 1946, Mr. Piper was appointed district highway engineer in the Dallas office. He became district engineer for Texas in 1949.

Thomas D. Shiels has been appointed district engineer of the Austin office to succeed Mr. Piper.

Mr. Shiels is a veteran of more than 25 years with PCA. He joined the association in 1925 as a field engineer with its Dallas district office and later served in the same capacity with its Austin district office. He is president of the Dallas branch of ASCE. As district engineer of the Austin office, he will direct association activities throughout Texas.

New officers for National Constructors

T. C. Williams, executive vice-president, Stone & Webster Engineering Corp., Boston, has been elected president of National Constructors Assn. National Constructors Assn. is an organization composed of engineers and builders of chemical plants, petroleum refineries, steel mills, and power plants. Mr. Williams succeeds John F. O'Connell, vice-president, The Bechtel Corp., San Francisco.

C. D. Haxby, vice-president, The Rust Engineering Co., Pittsburgh, was elected vice-president of the association. C. B. Bronson was re-elected secretary-treasurer.

Committee heads named by the association are: labor committee—chairman, P. L. Wetcher, personnel coordinator, C. F. Braun & Co., Alhambra, Calif.; co-chairmen, Eric Miller, personnel and labor relations manager, The H. K. Ferguson Co., Cleveland; and J. E. Quinn, director, labor relations, Procon Inc., Des Plaines, Ill.; safety committee—chairman, J. G. Hand, Foster Wheeler Corp., New York; co-chairman, C. A. Clore, supervising construction engineer, The Girdler Co., Louisville, Ky.; foreign committee—chairman, J. F. Ryan, business manager, Foster Wheeler Corp., New York; co-chairman, R. E. Atkinson, Koppers Co., Pittsburgh.

Baron resigns

Prof. Frank Baron has announced his resignation as director of the Structural Engineering Laboratory, University of California, Berkeley, to be effective June 30, 1955. He will continue at the university as professor of civil engineering.

ASTM cement committee meets

ASTM Committee C-1 and ten of its subcommittees met January 31 to February 2 at Cincinnati during ASTM Committee Week.

Changes in the physical requirements for portland cement, as covered in Standard Specification for Portland Cement (C 150) and in Standard Specification for Air-Entraining Portland Cement (C 175) were accepted subject to letter ballot of the committee. If approved, these recommendations will be presented to the society at its annual meeting in June for adoption. Culminating related discussions over a period of several years, the committee will recommend the deletion of the alternate strength requirements as now expressed in terms of tensile strength of mortar briquets. Based on a recent country-wide survey of strength tests made by numerous laboratories on many cements, a revision in the present compressive strength requirements will be recommended, most of which were increases in the strength requirements.

A new tentative method was accepted for letter ballot of the committee for the determination of false set of portland cement. This method involves the use of the mechanical mixer, and a modified Vicat apparatus using a brass rod with a stud on one end replacing the standard needle.

A number of existing tentative methods were approved at the meeting for adoption as standard. These include the short method for heat of hydration (C 186), normal consistency (C 187), fineness by air permeability apparatus (C 204 T), and definition of the term pozzolan (C 219 T).

A talk was given by M. A. Swayze, Lone Star Cement Corp., New York, tracing the history of the strength testing of cement.

Detroit forming CIB

Representatives of the concrete industry in Detroit approved a constitution establishing a Concrete Improvement Board. The organizational meetings have been attended by representatives of various materials producers, general contractors, ready-mixed concrete suppliers, products producers, testing firms, design engineers, and architects. Final steps of organization remaining are approval of the proposed bylaws, formal membership arrangements, and election of a board of directors and chairman of the board. The objective of the group is "the improvement of concrete construction in the Detroit area." The proposed bylaws contemplate a 12 to 15-man board of directors. Representation on the board of directors is to be limited to one for each group in the general membership, *i.e.*, organized associations, and professional and technical societies. Temporary officers of the present group are J. W. Winkworth, Winkworth Fuel and Supply Co., chairman, and Jack Irmsher, Peerless Portland Cement Co., secretary.

Ferguson announces promotions

Thomas H. Mitchell and Ralph W. Olmstead have been named vice-presidents of The H. K. Ferguson Co., engineers and builders, Cleveland. Mr. Mitchell will assist the president in construction matters, while Mr. Olmstead will direct his efforts towards obtaining new business.

Mr. Mitchell has been with Ferguson 32 years, and since 1952 has been main office construction manager.

Mr. Olmstead, joined Ferguson as assistant to the president in 1954. Before that, he was manager of special projects for The Morrison-Knudsen Co., Boise, Idaho, parent concern of Ferguson, for 4 years.

Robert L. Cashen was appointed vice-president and eastern district manager. Mr. Cashen assumes the position of W. N. Thompson, who was recently elected president. At the same time, Norvon Clark, eastern district contract manager, was named assistant eastern district manager.

Mr. Cashen has been operational vice-president of the company since 1951. He joined Ferguson as assistant general manager in 1945.

Mr. Clark, with Ferguson nearly 10 years, has been eastern district contract manager the last 2 years. He was assistant to the project director when the Ferguson Co. designed and built the nation's first peacetime atomic pile at Brookhaven National Laboratory, Upton, N. Y., in 1947. He also served in an administrative capacity when the company designed, built, and operated the thermal diffusion plant at the Oak Ridge, Tenn., Atomic Plant in World War II.

Bethlehem reinforcing bars in place on the new section of Philadelphia's Roosevelt Boulevard bridge at Second St. The bridge was widened to accommodate twelve lanes of traffic. *General Contractor:* Francis A. Canuso and Sons, Philadelphia. Steel was installed by L and R Construction Co., Haddon Heights, N. J.

Bridge-Widening Eases Traffic Snarls on Busy Philadelphia Boulevard

Traffic on Philadelphia's Roosevelt Boulevard used to get into rush-hour snarls at several bridges, where the Boulevard's twelve lanes of traffic converged on to the bridges' six lanes. Now, thanks to the widening of these bridges to twelve lanes, traffic will proceed at a better pace.

The bridge at Second St., shown here during construction, was widened on both sides, so that the finished structure will have two three-lane local traffic arteries and two three-lane expressways in the center, separated by an 80-ft cement island.

Bethlehem supplied 320 tons of fabricated reinforcing bars for the Second St. bridge and a total of 2100 tons of bars for all six bridges. The bars were specially bent and formed for the job at our Philadelphia bar fabricating shop.

Bethlehem has had years of experience in furnishing reinforcing steel to contractors. Bethlehem bars, made from new-billet steel to ASTM Specification A-305, are shipped completely fabricated from whichever of our nine bar fabricating shops is nearest your job site.

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Cutting culvert pipe with explosives

A unique way of cutting reinforced concrete culvert pipe in the field with explosives (Fig. 1) is currently being tested by United Concrete Corp. at its Baldwin Park, Calif., plant. Preliminary results indicate that it may be faster and cheaper than methods commonly used.

It is believed that J. A. Payton, a Riverside, Calif., contracting firm was the first to successfully cut concrete pipe with explosives in this manner, having adapted the procedure from their customary practice of cutting obstructing rocks with primercord.

United Concrete Pipe Corp. has conducted experiments with various sizes of reinforced concrete culvert pipe with varying wall thicknesses. Atlas Powder 100-grain primercord was used and detonated with electric blasting caps. The primercord must be carefully wrapped around the pipe, especially for a miter cut (Fig. 2). Varying numbers of turns of the primercord around the pipe and the position of the cord, *i.e.*, side by side or on top of other turns, were found to be important in producing the desired amount of fracture in each size of pipe. The blast travels through primercord at an approximate speed of 18,000 fps, producing an instantaneous effect. A distinct, clean crack can be obtained completely around the inside of the pipe to permit chipping away the concrete and cutting the reinforcing steel within a 1 in. area, leaving clean cut edges.

It is estimated that cutting concrete pipe in this manner will save 75 to 80 percent of the labor costs involved in the current method of using an airhammer, or a hammer and chisel, which requires a cut 4 in. wide and leaves a jagged edge to be smoothed.

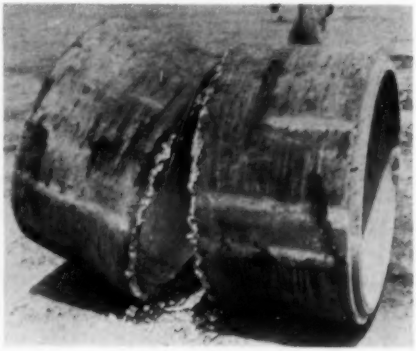

Fig. 1—36-in. reinforced concrete culvert pipe completely severed by blast of primercord. Longitudinal reinforcement was broken and only circumferential rod remains intact

Cutting concrete pipe with explosives apparently is faster, cleaner, and possibly cheaper than usual methods but it does have the obvious drawbacks of noise, concussion, and dangerous characteristics inherent in any explosive. The company is continuing its experiments.

Fig. 2—(left) Primercord wrapped around 72-in. reinforced culvert pipe preparatory for a miter cut. (right) 72-in. pipe after primercord was fired. A clean, distinct crack completely encircled the inside of the pipe. No other cracks were found

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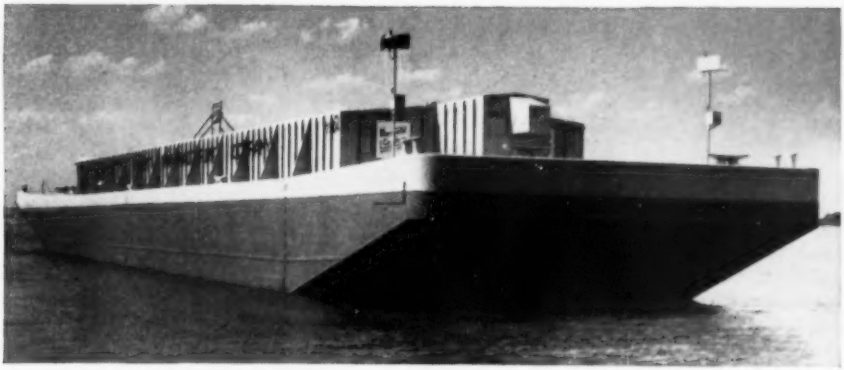

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Who's Who This Month

C. S. Whitney, B. G. Anderson, and E. Cohen

"Design of Blast Resistant Construction for Atomic Explosions," p. 589, is reported on by C. S. Whitney, B. G. Anderson, and E. Cohen.

Mr. Whitney, ACI president, is a partner in the consulting engineering firm of Ammann and Whitney, New York and Milwaukee. He is well known for his contributions to reinforced concrete design, particularly in shell construction and other arched structures and ultimate load design.

He received a CE degree from Cornell University in 1914 and his MCE in 1915 from the same school. Following graduation, he held positions with Gustave Lindenthal, New York; and as assistant engineer with John Parkinson, architect, Los Angeles. After serving in the Corps of Engineers during World War I, he was chief engineer to A. C. Eschweiler, architect, Milwaukee, and chief engineer and manager of the Milwaukee office of Hool & Johnson, engineers. From 1922 to date he has been a consulting and designing engineer, specializing in city planning, design and supervision of buildings, bridges, sewer and water systems, defense installations, and other projects.

Honors to Mr. Whitney are many, including the ACI Wason Medal for the most meritorious paper in 1932, "Plain and Reinforced Concrete Arches," and in 1952 as co-author of "Comprehensive Numerical Method for the Analysis of Earthquake Resistant Structures." In 1951 ACI awarded him the Alfred E. Lindau Award "in recognition of his many contributions to reinforced concrete design practice." Other honors include the Fuertes Graduate Medal of Cornell University twice, and the American Society of Civil Engineers J. James Croes Medal.

An ACI member since 1920, Mr. Whitney was elected vice-president of the Institute in 1953, was a member of the Board of Direction 1945-46 and 1950-52, and is a member of ACI's Standards Committee. He is chairman of ACI Committee 312, Plain and Reinforced Concrete Arches, and ACI-ASCE Joint Committee 326, Shear and Diagonal Tension. He is also a member of ACI Committee 214, Evaluation of Results of Compression Tests of Field Concrete, and ACI-ASCE Joint Committee 327, Ultimate Load Design.

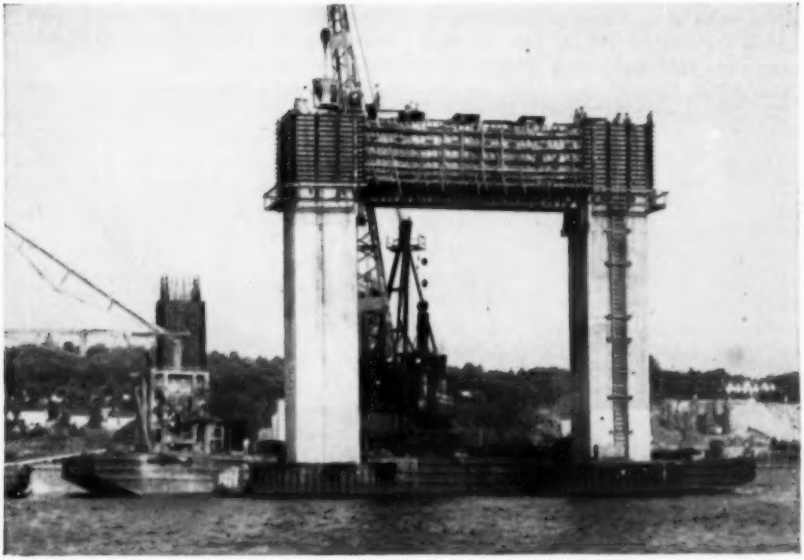
Mr. Anderson is an associate partner, Ammann and Whitney, and was previously an engineer with Charles S. Whitney, consulting engineer, and field engineer on buildings, canal locks, and piers in the designing engineer section of the Bureau of Yards and Docks, U. S. Navy, on timber, steel, concrete, and prestressed concrete aircraft hangars. He is a 1936 civil engineering graduate of the University of Wisconsin.

Mr. Anderson has been affiliated with ACI since 1945 and is a member of ACI Committees 312, Plain and Reinforced Concrete Arches, and 324, Precast Reinforced Concrete Structures.

Mr. Cohen, designing engineer, Ammann and Whitney, received BS and MS degrees from Columbia University School of Engineering, where he was awarded the Illig Medal in Applied Science. He was also awarded the Robert Ridgway Award from the Metropolitan Section of ASCE.

Since 1949 he has been engaged on design of auditoriums, hangars, bridges, and special structures and studies for Ammann and Whitney. He acted as principal assistant on design of the first full-scale atomic bomb resistant structures built (described in this JOURNAL). Since then, he has been engaged in design and investigation of blast resistant construction for the Corps of Engineers, the Federal Defense Administration, the U. S. Atomic Energy Commission, and the former National Security Resources Board. On leave during the winter of 1951-52 to Atlantic Engineers, Inc., Paris, France, he was chief structural engineer on design of standard structures for the U. S. Air Force in Europe.

Prior to joining Ammann and Whitney, Mr. Cohen was engaged in design of expressways, bridges, and industrial structures, with governmental and other consulting engineering offices since 1940. From 1948-52



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he served as lecturer, School of Architecture, Columbia University. He has been an ACI member since 1951 and is also a member of ASCE and Tau Beta Pi.

S. J. Turley

"Vibro-Cast Concrete Pipe for San Diego Project," p. 685, was contributed by S. J. Turley, materials engineer, United Water Conservation District, Santa Paula, Calif.

Mr. Turley attended Creighton University, Omaha, and began working for the Bureau of Reclamation in 1931 on the Owyhee Dam in Oregon and worked through the completion of the distribution system of the Owyhee project. He did preliminary work on the Anderson Ranch and Cascade dams in Idaho and the location and construction of the Boise Payette Division on canals and laterals.

In 1942 he worked in the concrete laboratory during construction of Parker Dam powerhouse. During World War II he did concrete materials work on concrete ships for concrete ship constructors. He was senior soils technician for the Navy for construction of the regulation reservoir for the San Diego aqueduct, first barrel. He was then appointed materials engineer in charge of the laboratory for the Bureau of Reclamation on the Coachella Branch of the All American Canal and in charge of the laboratory and pipe plants for the construction of the second barrel, San Diego project. At present he is employed by the United Water Conservation District, Santa Paula, Calif., in charge of inspection on one shift on the Santa Felicia Dam at Piru, Calif. Mr. Turley has been an ACI member since 1945.

K. G. Moody and I. M. Viest

"Shear Strength of Reinforced Concrete Beams. Part 4—Analytical Studies," p. 697, was co-authored by K. G. Moody, research engineer, Bridge Division of the Country Roads Board, Victoria, Australia, and I. M. Viest, research assistant professor of theoretical and applied mechanics, University of Illinois, Urbana.

Dr. Moody graduated from the University of Melbourne in 1949 with a bachelor of civil engineering degree and in 1950 he received the degree of master of engineering science.

In 1951 he was appointed a Dominion Service Fellow of the Commonwealth Fund of New York. Under the terms of this fellowship he pursued graduate studies and research at the University of Illinois receiving his PhD degree in 1953.

Dr. Moody has been employed by the Country Roads Board of Victoria since 1943 in various capacities on the design and construction of roads, airfields, and bridges. At present, he is engaged in the design of highway bridges. He has been an ACI member since 1951.

Dr. Viest graduated from the Civil Engineering Department of the Slovak Technical University. Later he received an MS degree from the Georgia School of Technology and a PhD degree from the University of Illinois. Between the periods of scholastic activities Dr. Viest was engaged in various phases of construction and design work. Since 1948 his work has been devoted to several research projects pertaining to steel and reinforced concrete structures. In addition, he has been active as consultant on various problems of industrial development and research.

Dr. Viest has been an ACI member since 1948, and is a member of ACI-ASCE Committee 326, Shear and Diagonal Tension, and of two task groups of ACI-ASCE Committee 323, Prestressed Concrete. He is also affiliated with ASCE, Sigma Xi, and Tau Beta Pi.

Philadelphia ASTM to meet

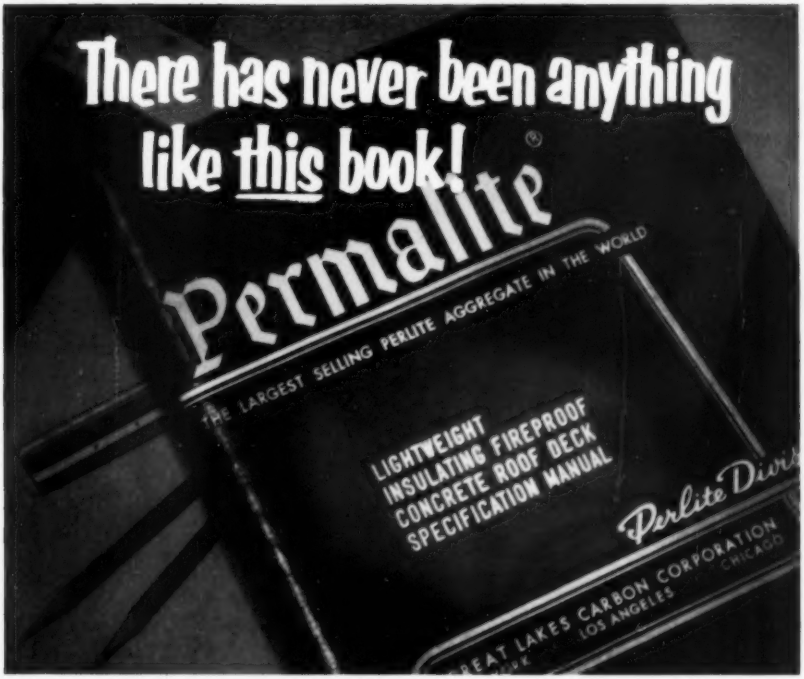
The Philadelphia district council of the American Society for Testing Materials will meet Tuesday, Apr. 12, 1955, at the Franklin Institute, Philadelphia.

Speakers will be Henry L. Kennedy, manager, construction specialties division, Dewey and Almy Chemical Co., and Stanton Walker, director of engineering for NSGA and NRMCA; both are past presidents of ACI.

Mr. Kennedy will compare concrete practices in Europe and the United States. Mr. Walker will discuss and evaluate acceptance tests for concrete.

Building Research Institute to meet

The fourth annual meeting of the Building Research Institute has been scheduled for Apr. 18 and 19, 1955, at Princeton University, Princeton, N. J. A number of technical sessions are planned with speakers, panel discussions, and question-and-answer periods. Visits to nearby research laboratories are also being planned.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New Members

The Board of Direction approved 75 Individual applications, 14 Juniors, and 12 Students, making a total of 101 new members. Considering losses due to resignations, deaths, and nonpayment of dues the total membership on February 1, 1955, was 6731.

Individual

BARTON, PAUL S., Birmingham, Mich. (Concrete Form Detailer, Barton-Malow Co.)

BASTIAN, ARTHUR C., Peoria, Ill. (Architect, Hewitt & Bastian)

BISHT, M. S., Lucknow, India (Chief Engr., Uttar Pradesh Public Works Dept.)

BORTZ, SEYMOUR A., Chicago, Ill. (Assoc. Struct. Engr., Armour Research of Illinois Institute of Technology)

BROWN, K. E., Syracuse, N. Y. (Engr., Vice-Pres., Winco Constructors, Inc., Div. of D. W. Winkelman Co., Inc.)

BRUDAL, HOLGER, Oslo, Norway (Director, State Highway Lab., Norwegian State Highway Dept.)

CAMP, GEORGE D., Mexico City, Mexico (C. E.)

CAMPBELL, WILLIAM R., West Palm Beach, Fla. (Lab. Engr., Design, Quality, Control, Testing Work, Rinker Material Co.)

CARPIO, GABRIEL D., Detroit, Mich. (Struct. Engr., Corps. of Engrs., U. S. Army)

CHALFANT, RAY K., JR., Atlanta, Ga. (Asst. Prof., School of Engrg., Ga. Institute of Tech.)

CHAPMAN, GORDON H., Minneapolis, Minn. (Vice-Pres. & Sales Engr., North Central Supply Co., St. Paul, Minn.)

CHAR, STANLEY FAH KONG, Honolulu, Hawaii (Struct. Engr., Dept. of Public Works, Hawaii)

CHARLTON, F. W., Vancouver, Canada (Pres. & Mgr., MacDonald & MacDonald, Ltd.)

CLINE, JOHN H., JR., Berkeley, Calif. (Struct. Design, Cline & Zerkle, Engr. & Arch.)

CONSTANTIN, EMIL, Lyss, Switzerland (Managing Director, A. Bangerter & Cia AG)

DALY, JAMES B., Washington, D. C. (Research, Standards & Technical Regulations Engr., Dept. of Licenses & Inspections, D. C. Gov't.)

DAMBRUN, CARL W., Detroit, Mich. (Detroit Mgr., Pittsburgh Testing Laboratories)

DAVIS, ROBERT L., Shreveport, La. (Asst. Plant Engr., Libbey-Owens Ford Glass Co.)

DEMPSTER, DAVID P., Cornwall, Ont., Canada

DE VIES, RONALD L., Houston, Texas (Sales, Product Control & Designs, Parker Bros. & Co.)

DINNER, SIDNEY E., Detroit Mich. (Sr. Struct. Engr., Giffels & Vallet, Inc.)

ENGSTROM, HAROLD, Little Rock, Ark. (Chf. Engr., Design & Sales of Steel & Concrete)

EVANS, M. O., Cleveland, Ohio (Chief Engr., Mines, Republic Steel Corp.)

FARRELL, JOSEPH R., Philadelphia, Pa. (Pres., Joseph R. Farrell, Inc.)

FEA, DALMORE DAVID, Southland, New Zealand (Managing Director of 5 Companies manufacturing Concrete Block, Posts, Pipes, etc.)

FEKETE, LANCELOT A., San Bernardino, Venezuela (Design of Industrial Bldgs., Frederick Snare Corp., & design for private companies and individuals, own engineering office)

FRAZELLE, CHARLEY, Jacksonville, N. C. (Struct. Engr., Pub. Works Dept., Design Div., Camp Lejeune, N. C.)

GOSSOM, JULIAN J., Grosse Pointe Woods, Mich. (Sales & Field Engr., The Thomas E. Currie Co., Detroit, Mich.)

GOUVIS, ARTHUR A., Chicago, Ill. (Architect, general practice of architecture)

GROTEFEND, W. H., Memphis, Tenn. (Mgr. of Memphis Branch, Pittsburgh Testing Lab.)

HAGER, RICHARD A., Dallas, Texas (Sales Engr., Sonoco Products Co., Hartsville, S. C.)

HARRIS, ROBERT OLIN, Atlanta, Ga. (Mfrs. Agent, Alabama Cement Tile Co.)

HECHT, MYRON, Chicago, Ill. (Highway Engr., in charge of Research, Cook County Highway Dept.)

INDERMUEHLE, LLOYD R., Los Angeles, Calif. (Chf. Chemist, Victorville Plant, Southwestern Portland Cement Co.)

IRELAND, WILLIAM R., Atlanta, Ga. (Pres., Atlanta Aggregate Co., Inc., Vice-Pres., Birmingham Slag Co., Birmingham, Ala.)

IRIZARRY, HERMINIO O., Provincia de Camaguey, Cuba (Chf. Engr., Compania Azucarera Vertientes-Camaguey de Cuba)

KELLEY, PETER G., Newton Falls, Ohio (Concrete Engr., A. R. Coffeen Co.)

KOVALEVSKY, LEONID G., Syracuse, N. Y. (Design Engineer, Erdman & Hosley, Cons. Engrs.)

MATA, GENEROSO S., Cleveland, Ohio (C. E., Building design & construction)

MAXWELL, HOMER BERNARD, Atlanta, Ga. (Pres., Maxwell & Hitchcock, Inc.)

MCEACHEN, W. J., Toronto, Canada (Sales Engr., Schell Industries, Ltd.)

MOHR, CHARLES M., Chicago, Ill. (Struct. Engr., Bruce A. Gordon Co.)

MOSHER, WILLIAM C., Toledo, Ohio (Engr., Jones, Henry & Williams)

MUKHERJEE, ASIM KUMAR, Minneapolis, Minn. (Lecturer in Civil Engrg., Bengal Engrg. College, Gov't. of W. Bengal, Calcutta, India)

NAIMAN, RICHARD D., Atlanta, Ga. (Pres., Gen. Mgr., Richard Naiman & Co.)

NEDELL, ROBERT S., Denver, Colo. (Owner, Robert S. Nedell, Cons., Struct., Engr.)

NEWHALL, GEORGE A., Detroit, Mich. (Chf. Civil & Struct. Engr., H. E. Beyster & Associates, Inc.)

O'CONNOR, EDWARD M., Long Beach, Calif. (Supt. of Bldg., Dept. of Bldg. & Safety, City of Long Beach)

O'HEIR, RICHARD J., New York, N. Y. (Technical Director, Perlite Institute)

PEARCE, CECIL E., New York, N. Y. (Hydraulic Engr., Ebasco Services)

PETERS, HUGH F., Madison, N. Y. (Constr. Supt., Mahony-Troast Constr. Co.)

RADELAT, GUIDO, Chicago, Ill. (Editor, Caminos y Construccion Pesada, Gillette Publishing Co.)

RAJU, B. CHANDRASEKHARA, Dept. of C. E., Colorado A & M College, Fort Collins, Colo. (Asst. Research Officer, Gov't. of Mysore, Bangalore, India)

RAMOS-FILARDI, VIRGILIO, Santurce, Puerto Rico (Vice-Pres., The Foundation Engineering Company of P. R.)

RIVES, EUGENE J., Allentown, Pa. (Struct. Engr., Luria Engrg. Co.)

ROBERTSON, HAROLD D., Toronto, Canada (Mgr., Harbour Brick Co., Ltd.)

ROBINSON, EDWARD A., Scarsdale, N. Y. (Vice-Pres., Gulick-Henderson Laboratories, Flushing, N. Y.)

ROTHSCHILD, BERNARD B., Atlanta, Ga. (Architect, Alexander & Rothschild)

SCHROEDER, ROBERT L., Detroit, Mich. (Project Engr., H. F. Campbell Construction Co.)

SEEBIN, GEORGE JAMES, Ottawa, Canada (Outside Supv., Pre-Compressed Concrete Eng. Co., Ltd.)

SNOWBALL, JOHN R., Columbus, Ohio (Cons. Engr.)

STEVENSON, R. D., Sydney, Australia (City Engr., The Council of the City of Sydney)

TACKE, WALTER H., Milwaukee, Wis. (Deputy Comm. of Public Works, City of Milwaukee)

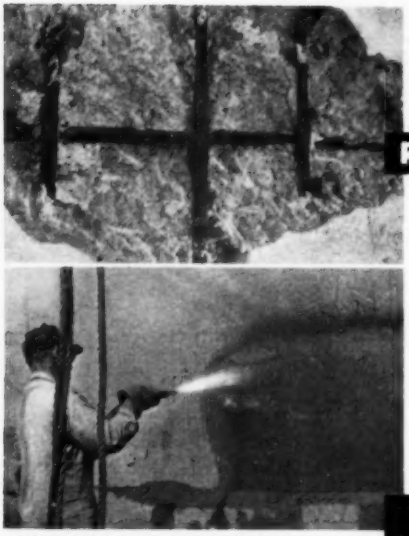
TAIT, JAMES M., Dearborn, Mich. (Mgr., John A. Mercier Brick Co.)

TOLNAY, DR. LOUIS H., Hollydale, Calif. (Design Engr., Macco Corp., Paramount, Calif.)

VAZQUEZ-AGRAIT, LUIS A., Santurce, Puerto Rico (Chf. Engr., The Foundation Engrg. Co. of P. R., Inc.)

VIGO-ISERN, ALBERTO L., Caparra Heights, Puerto Rico (Puerto Rico Planning Board, Bureau of Permits, San Juan, P. R.)

VILLARREAL, ALBERTO S., Monterrey, Mexico (Head of Technical Dept., Cerveceria Cuantemoc, S. A.)



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WESLEY, TERRELL C., JR., Atlanta, Ga. (Pres., Wesley & Co., Inc.)
WILCOX, GERALD L., San Antonio, Texas (Distr. Mgr., Central & South Texas Area, Ceco Steel Products Corp., Chicago, Ill.)
WILLIAMSON, FRANK L., Winter Park, Fla. (Pres., Holloway Concrete Products Co.)
WILLIAMSON, J. H., Christchurch, New Zealand (Governing Director & Chf. Engr., J. H. Williamson, Ltd.)
WOODFORD, JOHN P., Detroit, Mich. (Bridge Project Engr., Michigan State Highway Dept., Bridge Div.)
ZUEHLKE, GEORGE H., Madison, Wis. (Routine Testing & Research of Highway Materials, State Highway Comm. of Wisconsin)

Junior

BENSON, ROGER D., Minneapolis, Minn. (Struct. Engr., Walter H. Wheeler, Cons. Engr.)
BIRNSTIEL, CHARLES, JR., Rego Park, N. Y. (Instructor in C. E., New York University, College of Engrg.)
BISTODEAU, MARVIN J., Bismarck, N. D. (Mgr., Bismarck Branch, Twin City Testing & Engrg. Lab.)
BRANAS, JESUS CARMARGO, Mexico City, Mexico (Gen. Mgr., Constructora Branca, S. A.)
CAPSHAW, BERTIE J., Whiting, Ind. (Constr. Engr., Standard Oil Company, Indiana)
FOSTER, A. P., Calgary, Canada (Constr. Engr., City of Calgary)
HOSKINS, PHILIP E., Windsor, Conn. (Design sewerage systems, etc., prepare preliminary cost estimates, etc., Metropolitan Dist. Bureau of Pub. Wks.)
KEIGHTLEY, WILLARD O., Highland Park, Mich. (Instructor in C. E., Lawrence Institute of Technology)
LAUER, L. R., Edmonton, Canada (Sessional Lecturer, University of Alberta)
RAZZACK, MOHAMMED A., Springfield, Ill. (C. E. I. Bureau of Design, Illinois Div. of Highways)
THEODORE, CHARLES A., West Roxbury, Mass. (Design & Drafting, C. J. Kray)
THOMPSON, FREDERICK AGUSTUS, JR., Yeadon, Pa. (Field Engr., Geo. A. Fuller Co., New York, N. Y.)
TINGWELL, HARVEY B., Sydney, Australia (C. E. Snowy Mtns. Hydro-Elec. Auth.)
WEISS, DONALD, Detroit, Mich. (U. S. Army)

Student

ALLEN, RAYMOND JACK, Champaign, Ill. (Univ. of Ill.)
CHAUDRY, MUHAMMED YUSUF, Ithaca, N. Y. (Cornell Univ.)
DANIEL, J. S. N., Cambridge, Mass. (MIT)
FUKUDA, HOWARD V., Urbana, Ill. (Grad. Stud. & Research Asst., Univ. of Ill.)
HINDIYEH, OMAR M., Berkeley, Calif. (Univ. of Calif.)
MCINTYER, PHILIP E., Charlottesville, Va. (Univ. of Va.)
ORPUT, ALDEN E., Champaign, Ill. (Univ. of Ill.)
PIEDRDHITA, JOSE MARIA, Bogota, Colombia (Univ. of Calif.)
ROMERO, IGNACIO, Charlottesville, Va. (Univ. of Va.)
SACHS, ROBERT ALLEN, Champaign, Ill. (Univ. of Ill.)
SCHAUT, LEO L., Detroit, Mich. (Wayne Univ.)
YADAVA, KAPILDEO PRASAD, Berkeley, Calif. (Univ. of Calif.)

Have YOU sponsored a new member this month?

W. J. Barney

W. J. Barney, chairman of the board of the W. J. Barney Corp., New York construction firm, and long a leader in both professional and business activities in the construction industry, died last December.

Mr. Barney was a civil engineering graduate of the University of the South. He began his engineering career in the railroad field, shifted to general contracting, and in 1910 became secretary of the Department of Docks and Ferries of New York City. He remained with that department until 1913, leaving it to join a board of consultants for the port of Portland, Ore., and later the General Contracting and Engineering Co. of New York.

He founded his own firm in 1917 to specialize in industrial construction work. Active in industry affairs, he was an officer of New York's Building Trades Employers' Assn., the Building Contractors and Mason Builders Assn., the Associated General Contractors of America, and many other groups. He had been an ACI member since 1937.

Walter E. Corbett

Walter E. Corbett, president and treasurer of Corbett Concrete Pipe Co., Inc., Milford, Mass., and a former president of the American Concrete Pipe Assn., died recently. He had been an ACI member since 1936.

William G. Corlett

William G. Corlett of the architectural firm of Corlett and Anderson, Oakland, Calif., died recently. A graduate of the University of California, Mr. Corlett worked for various architectural offices and in 1912 joined the firm of Walter D. Reed. He became a partner in 1916. Later he was associated with Corlett and Anderson. He had been an ACI member since 1937.

George W. Meyer

George W. Meyer, former president of Meyer-Hecht Co., Cincinnati, died recently. He retired from the general engineering firm in 1952. He had been an ACI member since 1924.

Francis P. Witmer

Francis P. Witmer, prominent Philadelphia author and educator, died recently. Mr. Witmer taught briefly at the University of Pennsylvania following his graduation from there in 1893, returning in 1924 as director of the civil engineering department. In the interim he worked for the American Bridge Co. and had a private practice. In 1943 he joined the Philadelphia firm, H. A. Kuljian, as structural engineer. He had been a member of ACI since 1928.

Rackle named president

George P. Rackle has been elected president of The Geo. Rackle & Sons Co. of Cleveland, Ohio, and Houston, Texas. Mr. Rackle succeeds his father, George L. Rackle, who was named chairman of the board. The Rackle firm, founded in 1870, is one of the nation's oldest and largest manufacturers of precast concrete structural products.

Rackle's Texas Division, of which the new president was general manager, achieved national prominence for its development of a "continuous-flow" all-factory-precast, prestressed structural system for industrial and commercial buildings.

A graduate of Culver Military Academy and of Case Institute of Technology, Mr. Rackle served in the Coast Guard's civil engineering corps during World War II. He is a member of ACI, ASCE, and other professional organizations.

Executive changes at Atlas

A retirement and four executive changes at headquarters of Universal Atlas Cement Co., New York, were announced recently. Gordon C. Huth was elected to the newly created office of vice-president, industrial relations. Henry P. Reid, vice-president, engineering, retired but will be retained by the company in a consulting capacity. Louis M. Funderburg, vice-president, will assume the responsibility for engineering activities, in addition to his present direction of operating, purchasing, and tests and research.

Also announced were the appointments of W. Owen Lawrence as assistant vice-president, operations, and Raymond L. Walsh as assistant vice-president in charge of the engineering division.

Honor Roll

February 1, 1954—January 31, 1955

During the past year 896 applications for membership were received. Of this number, 689 applicants were proposed by members. The balance was derived through miscellaneous sources such as interest in ACI publications resulting in membership and letters directed to the Institute from persons and/or firms requesting membership.

This final tally of the Honor Roll presents the resultant effort of the members who introduced "new life" to ACI.

Raymond E. Davis headed the Honor Roll every month this year. His final credits total 22. C. H. Scholer and Lewis H. Tuthill share second place, each having proposed 12 new members. Henry L. Kennedy is third with 9½ credits and Samuel Hobbs holds fourth place honor with 8½ credits.

Raymond E. Davis	22
C. H. Scholer	12
Lewis H. Tuthill	12
Henry L. Kennedy	9½
Samuel Hobbs	8½
James A. McCarthy	8
Howard Simpson	8
F. N. Menefee	7
Earl I. Brown	6
Kenneth H. Gedney	6
Adrian Pauw	6
Phil M. Ferguson	5½
Ted Dahlstrom	5
Joseph G. Perri	5
Robert F. Adams	4
Grand Bloodgood	4
W. S. Cottingham	4
Robert S. Harris	4
Elmo C. Higginson	4
J. Luis Montiel G.	4
Constantin Polidoroff	4
Balbino Isagani Ponce	4
C. P. Siess	3½
Harold Birnbaum	3
R. A. Burmeister	3
Celso A. Carbonell	3
V. J. Cespedes	3
Thomas Cholnoky	3
Herbert K. Cook	3
Sam Hassid	3
John J. Hogan	3
J. W. Kelly	3
Hendrick Lauga	3
L. M. Legatski	3
Ramon Matheus C.	3
I. E. Morris	3
Jack E. Rosenlund	3
Mete Sozen	3
J. W. Tinkler	3
Robert J. Wening	3
William T. Neelands	2½
Ricardo Alduvin A.	2
A. Amirikian	2
Edwin C. Anderson	2
Vernon S. Andrews	2
J. H. Appleton	2
W. H. Armstrong	2
Irving S. Backler	2
C. K. Balhiser	2
William T. Bates	2
George F. Bishop, Jr.	2
Frederick L. Browne	2
Carlos D. Bullock	2
Felix Candela	2
Miles N. Clair	2
F. Thomas Collins	2
R. E. Copeland	2
Clayton M. Crosier	2
John G. Dempsey	2
J. Z. Dobrowolski	2
L. G. Farrant	2
J. J. Fox	2
J. Fruchtbaum	2
Gerald K. Gillan	2
Albert Goldberg	2
G. M. K. Hagen	2
W. John Hufschmidt	2
Raja Iliya	2
J. E. Jellick	2
Carson G. Jennings	2
E. A. Johns	2
Clyde E. Kesler	2
H. I. King	2
R. G. King	2
Kuniji Kondo	2
Gerald G. Kubo	2
Warren C. Leinbach	2
L. D. Long	2
A. M. Lount, Jr.	2
H. J. McCrodden	2
William McGuire	2
Jose N. Martin B.	2
Frank B. May	2
Newlin D. Morgan, Jr.	2
W. H. Muirhead	2
Kiyoshi Okada	2
W. E. Parker	2
S. A. Patel	2
Charles Peterson	2
H. C. Pfannkuche	2
C. J. Posey	2
Hugo Quillian	2
Abdur Rashid	2
Irvin Rasmusson	2
Edward K. Rice	2
Karl Roesser	2
John A. Ruhling	2
Harry M. Sato	2
Herbert A. Sawyer, Jr.	2
Leo W. Schmidt	2
John C. Seelig	2
Leroy A. Staples	2
Taylor E. Strubinger	2
David Tom	2
Frank E. Watson	2
Arthur G. Wood	2
George D. Youngclaus	2
Charles C. Zollman	2
M. A. Craven	1½
Warren Raeder	1½

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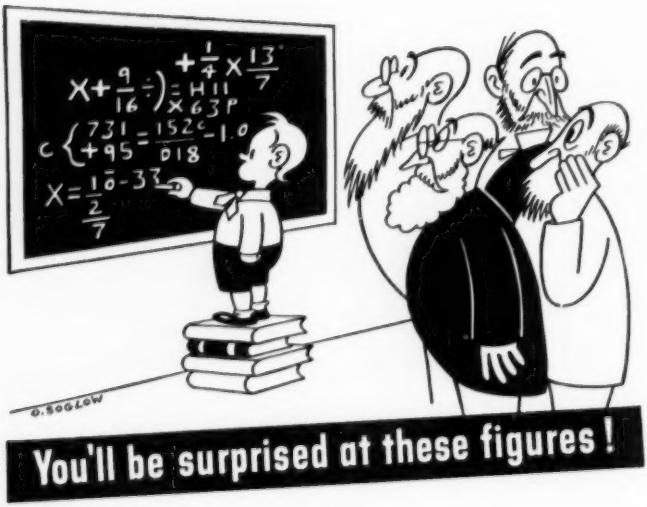

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Expanding Markets

Continued from p. 5

velopment, and of finding ways amid the great diffusion of participants of keeping the advance on a more or less even front. There are serious problems, too, in bridging the time-lag between the development and the adoption of improved materials and methods. Important as is the work of the technical societies and trade associations in this respect, the task is beyond the capacity of any one of them. Correlation on a broader scale is needed—an extension to the entire industry of the kind of cooperative effort so widely displayed within its separate elements.

In this later respect, *Construction Markets* mentions the work of the Building Research Institute, which seeks to stimulate research, and correlate and spread the results of research, considering the industry's technology in terms of the structure as a whole, and all types of structures, rather than in terms of components or individual types alone.

The objectives of the Building Research Institute, a subsidiary of the National Research Council, were stated as follows: (1) list, review, and correlate material on the planning and results of technologic research and development; (2) aid the advance of this technology; (3) disseminate information on current and completed research on materials and methods; (4) help avoid needless duplication in research; and (5) stimulate research in neglected areas.

Amid the high pressure demands of the first postwar years, attention could not be spared for construction's longer range problems. Today these problems are no longer of the future. Henceforward, the vitality of the construction industry will depend on the rapidity and effectiveness of its technological achievement. Unrelated, scattered effort will no longer be sufficient to assure the progress required to maintain expanding markets. The coordinating and stimulating function is therefore needed as never before, emphasizes the Chamber of Commerce publication.

LOOKING AHEAD

March 15, 1955—Columbus Area Concrete Conference—Sponsors: ACI, PCA, and Civil Engineering Department — Ohio State University, Columbus, Ohio

March 17-18, 1955—Sixth Annual Concrete Conference, Iowa State College, Ames, Iowa

April 18-19, 1955—4th Annual Meeting, Building Research Institute, Princeton University, Princeton, N. J.

April 18-21, 1955—Annual Meeting, Building Officials Conference of America, Milwaukee, Wis.

May 5-6, 1955—Annual Meeting, Society of American Military Engineers, Hotel Waldorf-Astoria, New York, N. Y.

June 2-4, 1955—Annual Meeting, National Society of Professional Engineers, Hotel Bellevue-Stratford, Philadelphia, Pa.

June 13-18, 1955—St. Louis Convention, American Society of Civil Engineers, Jefferson Hotel, St. Louis, Mo.

June 20-24, 1955 — Annual Meeting, American Institute of Architects, Hotel Radisson, Minneapolis, Minn.

June 20-24, 1955—63rd Annual Meeting, American Society for Engineering Education, Pennsylvania State University, State College, Pa.

June 26—July 1, 1955—Annual Meeting, American Society for Testing Materials, Chalfonte-Haddon Hall, Atlantic City, N. J.

Symposium on automation at Michigan State

As part of Michigan State College's Centennial, the School of Engineering is sponsoring a symposium on "Automation—Engineering for Tomorrow," May 12-13, 1955. Each department of the school will sponsor meetings on the particular phase of automation which will be of interest to men in that field. The Civil Engineering Department will devote the two days to "The Application of Automation to Building Design and Construction." One session will be specifically devoted to concrete buildings.

Prestress meeting

The Prestressed Concrete Institute, a national association of prestressed concrete manufacturers, announced that it will hold its first annual meeting Apr. 21 and 22, 1955, at the LagoMar Hotel, Fort Lauderdale, Fla.

It was announced that the program will consist of a round table discussion of manufacturing problems, talks by authorities in the prestressing industry, and a field trip to a pre-tensioning plant.

Ohio Concrete Block elects officers

Sam C. Davis, Dayton, was elected president of the Ohio Concrete Block Assn. at its second annual convention in Dayton, February 1-3.

V. J. McDevitt, Mogadore, was elected first vice-president, William H. Ebling, Lima, second vice-president, and James W. Wells, Jackson, treasurer, John F. Royer, Columbus, is secretary.

Mr. Davis appointed three engineers to the technical problems committee, R. B. Hindman, Marietta, acting chairman, O. H. Seeger, Columbus, and T. L. Goudvis, Elyria.

Permalite acquires new mine

Great Lakes Carbon Corp., Perlite Division, has leased, with option to buy, a perlite mine and plant at Klondike, Calif. Present owner is California Perlite Corp.

Tools, Materials, Services

Under this heading note will be made from time to time of producer literature of presumed technical interest (and available from its source for the asking) to ACI users of tools, equipment, materials, accessories, and special services.

Block handling

Emphasis on efficient materials handling techniques and use of a straddle carrier to make direct-to-job-site deliveries are two ways in which Geauga Lumber and Millwork Co., Chardon, Ohio, meets competition.

When an order is received for block they are immediately fork-trucked from storage to a bolster which is picked up by a Ross carrier. Thus no time is lost waiting for order-filling. Five cubes, or 450 block, are handled at one time by the carrier. Use of the carrier not only makes prompt delivery possible but also eliminates the time and cost of unloading at the job site.—Clark Equipment Co., Battle Creek, Mich.

Mortar joint corner reinforcing

Adrian Peerless, Inc., has announced prefabricated corner section mortar joint reinforcing. The "Super-Standard" reinforcing has 8-gage, 100,000-psi longitudinal rods and 10-gage cross bars. Bars are knurled and the cross bars project for better bonding to the mortar. Cross bars are galvanized. Returns are 48 x 48 in.—Adrian Peerless, Inc., 1428 Michigan Ave., Adrian, Mich.

Coating for concrete

Liquid Plastics Corp. has announced a plastic covering, Plastispray, for coating concrete. This vinyl plastic waterproofing veneer is sprayed on. First major use of the material was on the Carlton Hotel, Tyler, Texas.—Liquid Plastics Corp., 50-02 23rd St., Long Island City, N. Y.

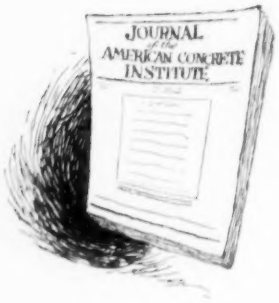
Bonding agent

A resinous, water-emulsion bonding agent, for bonding new concrete to old concrete, has been introduced by Larsen Products Corp. The agent is sold under the name of Weld-Crete.—Larsen Products Corp. 4934 Elm St., Bethesda, Md.

Form catalog

An 8-page catalog is available from Symons Clamp and Manufacturing Co. which describes the Symons forming system. Included are descriptions of corners and fillers, pilasters, walers, water ties, tightening wedge, short connecting bolt, two-way form tie and long connecting bolt, and wale plate. A section is devoted to form care.—Symons Clamp and Manufacturing Co., 4249 Diversey Ave., Chicago, Ill.

Have you wished afterwards that you had saved your Journal issue?



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● **The price to nonmembers is $12.00 each; to ACI Members, $5.00 each. Each volume is handsomely bound in blue cloth and lettered in gold to provide a permanent record one will be proud to own.**

Forms for manholes

Special panels designed to be grouped in an octagonal shape and used in placing concrete manholes have been built by Symons Clamp and Manufacturing Co. for Union Electric Co., St. Louis. They consist of a magnesium frame, with a panel of plastic faced plywood. The panels have no tie openings, but are cross braced for strength and are held together by connecting bolts and wedges.—Symons Clamp and Manufacturing Co., 4249 Diversey Ave., Chicago, Ill.

Safety program

The National Safety Council has published a booklet, "How to Start a Safety Program," which is designed to aid management get a safety program under way.—National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

Material handling report

Hyster Co. has issued "Field Report No. 52" on handling of precast concrete units for bridges with the use of the RT-150 and YE-40 lift trucks—Hyster Co., P. O. Box 4318, Portland 8, Ore.

Pre-mixed grout and mortar

The Master Builders Co. has recently marketed two pre-mixed cement products, Embeco pre-mixed grout and Embeco pre-mixed mortar. The mortar was designed for repair and caulking operations; the grout, for grouting machinery, anchor bolts, building columns, or similar operations. These products are said to offer high compressive and impact-resistant strength, ductility or toughness, oil and water resistance, and to be nonshrinking and fast hardening.—The Master Builders Co., 7016 Euclid Ave., Cleveland 3, Ohio

Vermiculite data book

A revision of the data book on the chemical and physical properties of vermiculite, issued by Zonolite Co., gives 40 industrial applications of the mineral. One section describes its uses in terms of absorption, catalytic, dielectric, filler insulation, lubrication, resiliency, and thermal expansion characteristics. Also included is discussion of chemical composition, crystal structure, surface area, pH and buffering capacity, water vapor adsorption, water liquid absorption, bulk density, and sieve analysis. A selected bibliography is included in the new edition.—Zonolite Co., 135 South LaSalle St., Chicago 3, Ill.

Membership in the American Concrete Institute

To facilitate prospective members in joining the Institute, membership application forms are provided. Present Members may aid by bringing these forms to the attention of those who may profit from membership advantages. The grades of membership are described overleaf.

All who have an interest in concrete and a desire to improve it through a nonprofit educational service in gathering, correlating, and disseminating information on design, construction, manufacture, use, and maintenance of concrete structures and products are eligible for Institute membership.

There are many opportunities in the Institute for technical committee activity, contributions from your experience in technical papers and the briefer "Letters from Readers" section, and in reviewing technical literature. Thus you can help further ACI's aim "to provide a comradeship in finding the best ways to do concrete work of all kinds and in spreading that knowledge," and at the same time benefit from the experiences of other Members.

(cut here)

Board of Direction, American Concrete Institute
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Detroit 19, Michigan

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Of the annual dues, $12.00 is for the JOURNAL of the American Concrete Institute (except that dues for Junior and Student Members apply in full for the JOURNAL).

The undersigned hereby applies for _____ **membership**
(Individual, Corporation, Contributing, Junior, Student)

in the American Concrete Institute. Proposed by _____

For Corporation Membership, ACI representative will be _____

_____ (Date of graduation if Student)

_____ (Name, if Corporation)

Signature _____

For our records, please complete both sides of application.

EXCERPTS FROM BYLAWS: ARTICLE I—MEMBERS

Section 1. This Institute shall consist of Members, Corporation Members, Contributing Members, Junior Members, Student Members and Honorary Members interested in furthering the Institute's objects as set forth in its Charter.

Sec. 2. A Member shall be an individual.

A Corporation Member shall be a firm, corporation, society, agency of government or other organization. A Corporation Member shall name one individual as its representative who will enjoy all membership rights and privileges.

A Contributing Member shall be an individual, firm, corporation, society, agency of government or other organization wishing to give larger support to Institute activities through the payment of larger dues. Contributing Members, other than individuals, shall name representatives as do Corporation Members.

A Junior Member shall be a person less than 28 years old.

A Student Member shall be less than 28 years old and a student in residence at a recognized technical or engineering school.

An Honorary Member shall be a person of eminence in the field of the Institute's interest, or one who has performed extraordinarily meritorious service to the Institute.

Sec. 3. All classes of Members except Honorary Members and Student Members, shall be proposed by at least one Member of the Institute and elected by a two-thirds vote of the Board of Direction. An Honorary Member shall be elected by unanimous vote of the Board of Direction. A Student Member shall be proposed by a member of his school's faculty, who need not be a Member of the Institute, and elected by a two-thirds vote of the Board of Direction.

Sec. 4. All Members shall have all rights and privileges of membership as determined by the Board of Direction except that a Junior or Student Member shall not vote nor hold office. The status of a Student Member shall change automatically to that of Junior Member on the first anniversay of his membership succeeding the date on which he ceases to be a student in residence. The status of a Junior Member shall be changed to that of Member on the first anniversary of his membership after he becomes 28 years of age.

Sec. 5. Applications for and resignations from Membership and requests for change of representatives of Corporation or Contributing Memberships shall be presented in writing to the Secretary-Treasurer. Resignations may be accepted only from Members whose dues are not more than 60 days in arrears, except by special action of the Board of Direction.

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Recommended Practice for Selecting Proportions for Concrete (ACI 613-54)—ACI Committee 613

Properties of Heavy Concrete Made with Barite Aggregates—L. P. Witte and J. E. Backstrom

One-Piece Reinforced Plastic Forms for Assembly Line Production of Thin-Shell Concrete Roof Sections—George P. Duecy and John L. Hutsell

Discussion closed February 1, 1955

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Precast Concrete Sandwich Panels for Tilt-Up Construction—F. Thomas Collins

Production of Sand and Gravel—Stanton Walker

Ultimate Strength in Shear of Simply-Supported Prestressed Concrete Beams Without Web Reinforcement—E. M. Zwoyer and C. P. Siess

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Ultimate Load Theory and Tests of Cylindrical Long Shell Roofs—G. C. Ernst, R. R. Marlette, and G. V. Berg

"Accidental" Air in Concrete—M. F. Macnaughton and John B. Herbich

Permeability of Portland Cement Paste—T. C. Powers, L. E. Copeland, J. C. Hayes, and H. M. Mann

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Observations on the Resistance of Concrete to Freezing and Thawing—Hubert Woods

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Static and Fatigue Tests on Partially Prestressed Concrete Constructions—Paul William Abeles

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Structural Applications of Hyperbolic Paraboloidical Shells—Felix Candela

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Design and Construction of a Folded Plate Roof Structure—Milo S. Ketchum

Ribless Cylindrical Shells—Mario G. Salvadori and A. D. Ateshoglou

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